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ABSTRACT

Evaluated was the effectiveness of the TAC (Training in Attention and Concentration) Program with seven trainable retarded persons, 8- to 20-years-old. Pre- and posttest data were obtained on the Maze-trial test, a picture discrimination test, buttons test, and object sort test. The TAC Program consisted of 10 structured lessons on such tasks as examining objects by touch with eyes closed and matching two objects by similarities and by differences. Results suggested that the more severly retarded Ss worked more diligently as a result of training, that the group demonstrated an increased ability to observe differences in objects, and that Ss increased their ability to form concepts regarding shape, color, and size. (CL)

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CHAPTER I

A. STATEMENT OF THE PROBLEM

The world we live in consists of various colors, forms, textures, movements, and noises. When observing something in our environment, we are usually paying less attention to or completely excluding other objects around the particular one we are observing. This process of selectivity is called attention. We are actively and purposefully giving our full attention to something of our own choosing. The Englishes, in their dictionary, define attention as:

> the active selection of, and emphasis on, one component of a complex experience, and the narrowing of the range of objects to which the organism is responding.[1]

Attention has always been something with which educators are concerned. Most educators strive constantly to motivate children and capture their attention. Learning usually takes place if the child can focus his attention on a lesson for the period of time necessary to complete a lecture or demonstration.

Many times, educators will characterize various children, who seem to be lost to reality, with the following

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[1] Horace B. English and Ava C. English, A Comprehensive Dictionary of Psychological and Psychoanalytical Terms (New York: David McKay Company, 1966), p. 49.

terms: inattentive, has a short attention span, does not pay attention, daydreams or seems to have a mental block. These are the children whose attention cannot be focused on one particular stimulus for a long period of time. They are distracted by any and every sound or smell that reaches their senses. D. Rapaport, in his psychoanalytical theory of attention, attributes the attention level of children to the following items:

1. Attention-energy, which is energy belonging to the attentional system which causes objects, people or events to be noticed, is available at birth. An individual is characterized by an innate level of attention-energy which, from the first hours of life, is available for handling stimulation.

2. Individuals differ in levels of energy with which they are endowed. Some individuals show a higher level of attention-energy; they can maintain a state of alertness longer and in the face of many stimuli competing for attention.

3. The basic level of energy is temporarily diminished by various physiological and psychological conditions and experiences. For example, fatigue and sleep states, physical illness and hunger diminish the attention-energy available.

Brief disturbances such as witnessing an automobile accident, as well as extended experiences such as dealing with a long standing emotional conflict will drain away energy.

4. By investing energy in information, the individual literally constructs his reality. That is, when attending, the individual does not simply become aware of one part of the field more vividly than others; rather the individual grasps, maintains and subsequently uses what he has noticed. This is done by a process which involves the 'binding up' of attention-energy to form 'cognitive structures' or 'schemata' of information.

If a stimulus attracts attention-energy for a sufficient amount of time, the continuous and extended investment of attention-energy to that stimulus gives rise to, or results in, a cognitive structure -- that is, a memory trace or an enduring, stable, mental image of that particular object. As these mental structures are constructed, they are gradually grouped to form larger organizations which are increasingly differentiated and integrated. These mental schemata or organizations form the mental basis against which new information is compared and into which it is assimilated.[2]

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[2]D. Rapaport, "On the Psychoanalytical Theory of Motivation" The Nebraska Symposium on Motivation (Lincoln, Nebraska: University of Nebraska Press, 1960), pp. 173-247.

The above criteria refer to attention-energy which is available in all individuals. The amount of this attention-energy is dependent upon many factors: the most important of which is the mental health of the individual. If the individual is mentally deficient or retarded, his level of attention will be lower than that of a normal child. Just how low the level of the child will be is entirely dependent upon the degree of mental retardation present.

The general theory of attention that was proposed by Rapaport leaves the writer in the position to consider the process of focal attention which accomplishes the following tasks:

1. Directs attention to objects;
2. Binds attention-energy to form cognitive schemata or images to these objects;
3. Constructs a mental reality within which the individual operates;
4. Relates new experiences to already formed cognitive organizations.[3]

It is with focal attention that this paper will concern itself. As previously mention, retarded individuals

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[3]Sebastiano Santostefano, Training in Attention and Concentration (Philadelphia: Educational Research Associates Incorporated, 1967), p. 18.

have more trouble than normal children in giving their attention to a particular stimulus for any length of time. Malinda Garton states: "The mentally retarded child's attention span is short and his interest wanes with each passing moment."[4]

The retarded child has difficulty engaging a stimulus and comprehending the function or meaning of it. The reasons for this are that first, the child has a limited mental capacity and second, his attention span is very short which causes his attention span to be practically non-functional. Santostefano states:

> Focal attention concerns the act of engaging an object fully with one's attention over a sufficient period of time so that one can observe, register and comprehend the unique properties and functions of that object and its possible relationship with other objects.[5]

The mentally retarded child serves as a prime example of deviant development in focal attention. The child, depending upon the degree of retardation, will have a lower amount of attention-energy than the normal child. Because of his low intellectual capacity, the retarded child is upset

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[4]Malinda D. Garton, Teaching the Educable Mentally Retarded (Springfield, Illinois: Charles C. Thomas, Publisher, 1967), p. 222.

[5]Sebastiano Santostefano, Training in Attention and Concentration (Philadelphia: Educational Research Associates Incorporated, 1967), p. 18.

and confused by the information which he cannot organize and utilize. The combination of low intellect and a low amount of attention-energy tends to make the retarded child extremely passive in his response to stimuli. He usually reacts only to those stimuli which will satisfy basic needs. He avoids more information than is necessary even in relation to his own intellectual capacity. In other words, the retarded child becomes an underachiever.

Through the TAC (Training in Attention and Concentration) Program, the writer will attempt to prove that the retarded children who take part in this study will be trained to be more selective and active in utilizing his attention; thus, they will begin to achieve nearer to their full potentials. The means of proof are tests to be administered to the children prior to the training program and upon completion of the program.

B. PROCEDURES

The Training in Attention and Concentration Program gives special emphasis on focal attention. The program utilizes tactile training in dealing with mentally retarded children. The children feel and see the objects with which they are working. The program encourages the children to discover and construct, mentally, the different properties of a single object that is inspected by touch or by exercises

of focal attention.

The group of retarded children that were used in the TAC Program are a group classified as trainable mentally retarded children. It should be noted that mentally retarded children are generally classified by Intelligence Quotient. The most commonly used classification is:

1. Custodial mentally retarded individuals -- This group has an I.Q. range from 0 to 30. These individuals are usually institutionalized and are unable to meet their basic needs. Clinical types with visible physical stigmata are prevalent.

2. Trainable mentally retarded individuals -- This group has an I.Q. range from 30 to 50. They cannot profit from the usual educational program offered by the public schools. Through special education facilities, however, they learn self-care, good social behavior, motor skill development and menial academic functions. This group will always need supervision but may become contributing members of society by working in the many day-care centers.

3. Educable mentally retarded individuals -- This group has an I.Q. range of 50 to 70. They need a special education program with emphasis on routine and basic academic skills. They usually do not learn beyond a sixth grade level. Unlike the custodial or trainable mentally retarded individuals, this type of retardate usually becomes self-sufficient by

obtaining jobs in factories or other unskilled labor fields.

4. Borderline or slow-learner type -- This group has an I.Q. range from 70 to 90. Because of insufficient programs to meet the needs of this group, these individuals constitute a majority of high school drop-outs. Eventually, they obtain some type of unskilled job, marry, and raise families.

The children used in this study are characteristic of the trainable mentally retarded group. When administering the TAC Program, it is important to keep the following details in mind:

1. Many of these children have physical characteristics which accompany their specific type of mental retardation, such as mongoloidism, microcephaly (small head), hydrocephaly (large head), and brain injury.

2. Their mental development is approximately one-half to one-quarter that of an average child.

3. Their speech and language abilities are distinctly limited but they are able to make their wants known.

4. They are, generally, not capable of learning academic skills such as reading and arithmetic beyond the rote learning of some words and simple numbers.

5. They are capable of getting along in the family and in the immediate neighborhood by learning to share, to respect property rights and in general to cooperate with their families and neighbors, although they cannot be expected to

be self-sufficient in making major decisions.

6. They are capable of eventually learning self-care in personal routine, good health habits, safety, and in other necessary skills which will make them more independent of their parents.

7. They are more capable of assisting in chores around the house and/or doing a routine task for some renumeration in a sheltered environment.

8. They will require care, supervision, and economic support throughout their lives.[6]

The method for administering the Program is that which is recommended in the TAC Manual and Text.[7] It consists of a series of structure lessons (see Chapter III) in which the concept of focal attention is developed. Each lesson will be administered by the instructor in a one-to-one relationship with each child after having given a pre-test to each child individually.

For an evaluation of the TAC Program, a series of four tests were used. Prior to the administering of the TAC Program, the series of tests were given to each of the children

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[6]The Illinois Plan For Special Education of Exceptional Children: A Curriculum Guide for Teachers of Trainable Mentally Handicapped Children (Circular Series B-2. Springfield: Illinois Department of Public Instruction, 1955), p. 3.

[7]Sebastiano Santostefano, op. cit., pp. 100-104.

involved in the study. Upon completion of the TAC Program, these same four tests were given to the children. These tests were designed to assess the child's ability to center his attention on a particular stimulus and to them perform a function with it. The following is a brief description of each test and what it presumes to measure:

1. Maze-Trail Test -- The child is asked to draw a line through a maze from the starting point to an end point. The test measures visual-motor coordination, directionality - a sense of distance bracketed by a starting point and an end point - and purposefulness.

2. Picture Discrimination Test -- The child is asked to cross out the picture that does not belong in the group of pictures presented to him. There are four pictures in each group and only one from each group does not belong. The test measures object discrimination and matching, as well as searching behavior.

3. Button Test -- The child is asked to place white, black, and grey buttons into specific containers. This test assesses categorizing behavior and a sense of location in space.

4. Object Sort Test -- The child is asked to group circles, triangles and squares according to color and shape. One set of squares is black. All other shapes are white.

Further information concerning these tests are found

in Chapter III.[8]

C. LIMITATIONS

The limitations of this study and factors affecting it are the following:

1. The Sample Used -- The results of the TAC Program with this particular group in no way indicate that all trainable mentally retarded children will perform in this manner. This is only a small sample and generalizations outside the group cannot be considered valid. In the study group there were five girls and two boys.

2. Age -- The ages of the girls used in this study range from seven years six months to twenty years nine months.

The ages of the boys used in the study range from eight years one month to ten years five months. It should be noted that the group as a whole ranges from eight years one month to twenty years nine months.

3. Maturity -- The data on the sample group, from previous tests and medical evaluations is practically non-existent. The trainer must therefore assume that these children, because they are trainable mentally retarded children, have mental ages between one-half to one-quarter that of an average child of their own chronological age (see pages seven

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[8]Sebastiano Santostefano, op. cit., pp. 108-109.

and eight of this text).

4. Psychological and Physiological Factors -- Some of the children, besides being mentally retarded, have emotional disorders and are either hyperactive or withdrawn. One child has cerebal palsy and has difficulty maintaining his equilibrium. He also has difficulty grasping objects.

5. Culture -- Two of the children are of Spanish-American ancestry. They do not seem to have any trouble understanding the English language but they did answer some of the questions in Spanish.

6. Time -- During the pre- and post- tests, the child worked at his own rate until the test was completed. The child was asked to do only one test and then was sent back to his classmates. At no time were two tests given to the same child during the same test period. During the administering of the TAC Program, the child remained with the trainer for no less than ten minutes and no longer than twenty minutes.

7. Distracting Influences -- During all phases of the study, pre- and post- test evaluations, and the administering of the TAC Program, classroom noises were heard. It is the purpose of the Program to enable the child to focus his attention on a particular stimulus and to observe and record it regardless of normal classroom distractions.

8. Class Grouping -- Ideally, trainable children are

grouped in a progressive sequence of three grade levels. Usually, these levels are classified as primary, intermediate and senior.

The primary level consists of children whose ages range from six to ten years. The intermediate level consists of children whose ages range from ten to thirteen years. Finally, the senior level consists of those thirteen to eighteen years of age although in some cases it goes to twenty years.

The particular group used in this study, regardless of special education grade level, were grouped in the same classroom, which is not the recommended procedure. Each level should have its own classroom and teacher both of which are geared to meet the particular needs of that level. This type of arrangement will undoubtedly have a bearing on the outcome of the study.

9. Test Construction (validity, reliability, standardization) -- The tests used in this study are those used by Mr. Santostefano in other studies of the TAC Program. They were adapted from those used in the TAC Manual.

D. NEED FOR THIS STUDY

Anyone who has ever observed a mentally retarded child, be he trainable, educable or borderline, will note how poorly the majority of these children do in perceiving and organizing

information according to particular principles. This is due to an insufficient growth of cognitive clearness, that is, "the clearness and distinctness with which one is aware of the relationship of an object."[9]

Through the TAC Program, the development of focal attention attempts to decrease this defect in cognitive functioning by training the child to perceive the stimuli more clearly and also by having the child compare and contrast stimuli according to their various properties. A clearer relationship is then established between the various stimuli of every-day life.

Proper use of the Program should improve the ability of the retarded child to achieve closer to his potential. One study that is mentioned, concerns a ten year old boy called John. John was evaluated by a clinical psychologist and found to be greatly lacking in his ability to deploy his attention and concentration for any extended period of time. Also, he was extremely hyperactive. The TAC Program was given to John for approximately six months. During that period of time:

> John's school performance gradually improved . . . he was described by teachers as seeming less scattered, as paying more attention and as showing more interest in what was going on. It seemed the focal attention training helped John make his classroom experience a more positive one, which in turn enabled him to settle down.[10]

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[9]Horace B. English and Ava C. English, op. cit., p. 93.

[10]Sebastiano Santostefano, op. cit., p. 113.

The children who are given this program usually benefit from it, as John had. The fact that it is relatively new (1967) tends to disuade schools from using it. There has not been enough studies on it to show its true value. More studies are needed to prove to educators that all children, not only the retarded, can benefit from this type of training.

E. DEFINITIONS

Attention-energy -- Energy which belongs to the attentional system which enables an object, person, or event, or some mental image, memory or thought to be noticed.[11]

Cognitive -- An awareness or knowledge of an object.[12]

Schemata -- A number of ideas or concepts combined into a coherent plan or outline; a plan or model that displays the essential or important relationship between concepts.[13]

TAC (Training in Attention and Concentration) -- A program of individually administered lessons for cognitive

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[11] Sebastiano Santostefano, TAC Manual and Text (Philadelphia: Educational Research Associates Incorporated, 1967), p. 15.

[12] English, op. cit., p. 92.

[13] Ibid., p. 478.

development of children.[14]

Tactile -- Pertaining to the touch.[15] In this study it pertains to the objects used in the TAC Program which the children will touch.

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[14]Santostefano, op. cit., p. 1.

[15]English, op. cit., p. 542.

CHAPTER II

REVIEW OF RELATED MATERIAL

The fact that all children are distractable to varying degrees is an accepted truth. Mentally retarded children are more distractable than normal children due to what psychologists call an immature ego which results from a prevalence of id impulses over an abnormally long period of time.[1] This, basically, means that the id, which is the amoral part of the subconscious, governs the child's behavior. The child who is id rules has no real concept of right or wrong and is either docile or hyperactive. When the ego, which is the controlling factor over the id, does develop, it is usually impaired because it still does not have the necessary muscular coordination, speech patterns and perceptual processes to develop fully. The retarded child, therefore, will be extremely immature for his chronological age. He will, in most cases, underachieve in all areas, because of distracting influences to which the id of the child tends to respond. Being distracted, the child ignores the important stimulus which is presented to him because he is unable to focus his attention for any length of time. Samuel Kirk makes reference to an individual's "distractability;" he states:

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[1] Max L. Hutt and Robert Gwyn Gibby, The Mentally Retarded Child (Boston: Allyn and Bacon, Incorporated, 1965), p. 186.

> Distractability on the part of the retarded child reveals an organism which responds abnormally to the stimulation of a school environment. The child reacts unselectively, passively, and without conscious intent. The child either is distracted by the external stimulus of the environment of a classroom or may sit quietly at his desk noting a detail of the task at hand but not completing the task. This hypersensitive behavior on the part of the child, resulting from his lack of inhibition, indicates lack of cortical control. If there is a noise outside he runs to the window to find it; the classmates distract him by movement and other activities. Attempts on the part of the teacher to motivate and stimulate such children result in boisterousness, uncontrolled laughter, and in running around the room.[2]

If those retarded children who are capable of learning can be trained to concentrate and associate visual stimuli with images that they have imprinted in their minds, they might adapt more readily to their environment. They will understand danger words and other relevant stimuli that will aid them in their daily lives.

The fact that retarded children are "lazy perceivers" was shown in the research conducted by Zeaman and House. Their study was conducted on a group of retardiates who, like most, were easily distracted. Through their study they concluded that retardates seem to suffer more from the inability to observe relevant dimensions of stimuli rather than from

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[2]Samuel A. Kirk and Orville G. Johnson, Educating the Mentally Retarded Child (Cambridge, Massachusetts: Houghton-Mifflin Company, 1951), p. 109.

the inability to learn which of two cues is correct.[3] In other words, these children had deficient focal attention and were not learning as much as they were capable of learning.

Other studies in the area of focal attention and its effect on learning are as follows:

1. In 1967, Santostefano and Stayton used thirty-one mothers and their moderately to severely retarded children. The I.Q. of a group classified in the area of moderately to severe would range from 25-65. In the study there were seventeen boys and fourteen girls. Their chronological ages ranges from three to eight years.

The mothers were trained to administer the TAC Program to their children at home and were instructed to conduct the training for approximately ten minutes per day. They conducted training under supervision for a period of four months.

The children were evaluated with a battery of tests before and after training (see Chapter I, Section B - Procedures). Each test was devised to assess relatively distinct intellectual functions presumed to represent higher cognitive processes than attention deployment. To test the

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[3] D. Zeaman and Betty J. House, "The Role of Attention in Retardate Discrimination Learning," Handbook of Mental Deficiency: Psychological Theory and Research, N. R. Ellis, ed. (New York: McGraw-Hill, 1963), pp. 159-223.

effect of the training in focal attention, the test performance of the children trained with TAC was compared with that of children who did not receive TAC training. The control children (fourteen boys and thirteen girls) were matched for I.Q. and age. It should be noted that both groups also attended nursery school.

An analysis of test scores revealed that the children trained in focal attention with the TAC Program showed a significantly greater increase after training, than did the control group, in the success in which they handled the tests. Prior to the TAC training, both the experimental group and the control group had shown almost identical ability in handling the pre-training tests.[4]

2. In 1968, Santostefano and Goldman utilized a group of mothers and their retarded children to determine whether the results of the 1967 study would prove reliable. As in the 1967 study, the mothers trained the children at home. Results with the battery of tests indicated that, as with the first study, the retardates trained in focal attention showed greater growth in each of the areas of thinking which were evaluated.[5]

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[4]Sebastiano Santostefano, Training in Attention and Concentration (Philadelphia: Educational Research Associates Incorporated, 1967), p. 108.

[5]Santostefano, op. cit., p. 110.

3. Another study by Santostefano and Stayton was conducted with institutionalized retardates to assess the possible interaction between training in focal attention and classroom experience.

In this study, institutionalized mental retardates were matched for intelligence, age, and length of institutionalization and were randomly assigned to one of four groups. The four groups were classified as follows:

A. Group I: These children took part in a school program that offered such experience as learning table manners, number concepts and songs, and constructing with paper and paste. Each member of Group I received training in focal attention for approximately ten minutes daily.

B. Group II: This group participated only in the school program which was identical to that which Group I received. Group II did not receive any training in focal attention.

C. Group III: This group received training in focal attention on an individual, daily basis only. They had no school program.

D. Group IV: This group did not participate in a school program nor did they receive training in focal attention.

All of the subjects in each group were evaluated with the battery of tests described earlier. They were evaluated

prior to the TAC Program training and also after the training.

The results of the post training tests suggested that training in focal attention resulted in a greater degree of improvement than did the school experience.[6]

The fact that educators are aware of this problem of deficient focal attention in trainable mentally retarded children was exemplified by the teaching principles that the Executive Director of Community Day Care Centers in Illinois proposed. A few of the points for reference are:

1. Be specific, direct and concrete;
2. Introduce one activity at a time;
3. Minimize verbal instructions;
4. Focus attention on important stimuli.[7]

One can see by the above points that the teacher will attempt to limit unnecessary sources of stimuli. They are attempting to keep the teaching program simple, basic and uninvolved. Through the limiting of unnecessary stimuli, the child's attention will not be distracted as much and learning should take place.

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[6]Santostefano, op. cit., pp. 110-111.

[7]Richard C. Scheerenberger, "Nursery School Experience for Trainable Mental Retardates," Proceedings of the third annual meeting of the executive directors of the Community Day Care Centers for Mental Retardates in Illinois. Springfield, Illinois: 1969, pp. 1-18.

These studies and various points presented in this area prove that deficient focal attention correlates to under-achievement in the mentally retarded child. With the proper training program, however, the retarded child may perform closer to his potential.

CHAPTER III

PRESENTATION OF DATA

Prior to administering the TAC Program, each child was individually given a battery of tests described in Chapter I, Section B - Procedures. The training sessions were held four times per week and lasted for ten minutes per each session.

The training was administered individually by a series of structured lessons designed to develop focal attention in the child.

Upon completion of the training sessions about six weeks, each child was given the same battery of tests as he had taken prior to the training sessions. The results were then compared to the pre-TAC Program tests. These results will be mentioned later.

In the administering of the TAC Program, the following materials were used:

1. Rubber balls of various textures and densities and rubber erasers,
2. Plastic geometric shapes with smooth surfaces and with textured surfaces,
3. Miniature copies of familiar objects: metal forks and spoons and keys,
4. Plastic animals,
5. A black cloth bag,

6. A shoe box with the ends cut out,

7. A stop watch.

Items numbered 1-4 were used in duplicate.

The following is an analysis of the pre-test results, the TAC Program, and the final post-test evaluation:

A. PRE-TEST EVALUATION

1. Maze-trail Test -- The children were asked to draw a line through a double-S maze from a starting point to an ending point. Results: (see Figure I).

A. Four of the girls had little trouble with the task.

B. Both boys and one girl showed much difficulty in performing the task.

C. Both boys were noticeably distracted and hyperactive during the test.

D. Average time to perform the task was fourteen seconds.

2. Picture Discrimination Test -- The children were asked to find a series of pictures in a group that had a common property and to cross out the picture that did not have a common property. For example, a dog, a cat, a bird and a flower is pictured. The flower should be crossed out because it is not an animal as are the remaining three. There

were five separate groups of pictures. Results: (see Figure II).

A. Only one child got all five groups correct.

B. No other children received more than three out of five groups correct.

C. All of the children knew what each picture was, yet the majority had difficulty in seeing similarities and differences in each group.

D. The oldest child and the youngest child were the only two who made the second highest scores: three correct out of five groups.

3. Buttons Test -- In this test, each child was asked to place four white, four black and four grey buttons into containers which were correspondingly marked white, black and grey. Results: (see Figure III).

A. One child put two white buttons in the correct container, then put all the remaining buttons in the black container.

B. One child put one black button in the correct container then scooped up a handful of buttons and put them randomly into any container.

C. One child put all of the buttons into one container.

D. The remaining four children did the task correctly.

4. Object Sort Test -- In this test the children were

asked to group circles, squares, and triangles, according to some particular property such as shape or color. All the geometric shapes were white except for one set of squares which were black. Altogether there were two white squares, two whate circles, two white triangles and two black squares. Results: (see Figure IV).

A. Two of the children could not put the geometric shapes in their proper group.

B. The remaining five children did the task correctly.

General Pre-test Observations:

1. The majority of the children were noticeably distracted by classroom noises. Those who were most distracted were not as successful with the tasks.

2. One child did not speak to the trainer during the entire testing periods, although prior to and after each test the child did say a few words.

3. One child was constantly looking into a mirror which was in the testing room. The child had to turn around in order to see his reflection because the mirror was in back of him.

4. Chronological age was not a prime factor in achiement. Some of the younger children performed better than the older children.

CHILD	OBSERVATIONS
A	No difficulty in doing the task.
B	Did task correctly first time. Tried it a second time and failed.
C	Child had trouble staying in lines.
D	Much difficulty keeping crayon on paper. Did task correctly
E	No difficulty with task.
F	No difficulty with task.
G	No difficulty with task.

Figure I

Pre-test One: Individual Performances of the Maze-Trail Test

OBSERVATIONS	BEHAVIOR
o difficulty in doing the task.	Withdrawn
ld task correctly first time. Tried it a second time and failed.	Distractable
hild had trouble staying in lines.	Very cooperative
ch difficulty keeping crayon on paper. Did task correctly	Very excitable
o difficulty with task.	Excellent
o difficulty with task.	Excellent
o difficulty with task.	Excellent

Figure I

t One: Individual Performances of the Maze-Trail Test

CHILD	NUMBER OF ITEMS CORRECT	OBSERVATIONS
A	2	Did not speak to trainer.
B	3	Child did not know what some pictures were. Trainer had to name them.
C	1	Child insisted on marking first block.
D	2	Child had difficulty holding crayon and marking items.
E	2	Child looks in mirror constantly.
F	5	No difficulty.
G	3	Knew names of objects. Had difficulty finding differences.

Figure II

Pre-test Two: Individual Performance on the Prefere Discrimination Test

ER OF EMS ECT	OBSERVATIONS	BEHAVIOR
2	Did not speak to trainer.	Withdrawn
3	Child did not know what some pictures were. Trainer had to name them.	Attentative
1	Child insisted on marking first block.	Distracted
2	Child had difficulty holding crayon and marking items.	Distractable
2	Child looks in mirror constantly.	Talkative and Active
5	No difficulty.	Excellent
3	Knew names of objects. Had difficulty finding differences.	Excellent

Figure II

Pre-test Two: Individual Performance on the Prefere Discrimination Test

CHILD	TIME TO PERFORM TEST	OBSERVATIONS	
A	3½ Min.	Worked slowly and deliberately.	Wit
B	25 Sec.	Put all buttons in one jar.	Dis
C	20 Sec.	Put all buttons in one jar.	Dis
D	35 Sec.	Did not know difference between Grey and Black. Put two white buttons in correct jar. Put remaining buttons in black jar.	Exc
E	30 Sec.	Did not know color grey, however, when told what it was performed task perfectly.	Gid
F	20 Sec.	Did not know color grey. When told what it was did task correctly.	Exc
G	10 Sec.	No problem with task.	Exc

Figure III

Pre-test III: Individual Performance on the Button-Test

	OBSERVATIONS	BEHAVIOR
n.	Worked slowly and deliberately.	Withdrawn
.	Put all buttons in one jar.	Distracted
.	Put all buttons in one jar.	Distracted
.	Did not know difference between Grey and Black. Put two white buttons in correct jar. Put remaining buttons in black jar.	Excited
.	Did not know color grey, however, when told what it was performed task perfectly.	Giddy
.	Did not know color grey. When told what it was did task correctly.	Excellent
.	No problem with task.	Excellent

Figure III

-test III: Individual Performance on the Button-Test

CHILD	TIME TO PERFORM TASK	OBSERVATION	
A	45 Sec.	No trouble - did not speak.	Wi
B	35 Sec.	No trouble - did not speak	Wi
C	1 Min.	First attempt failed - second was successful	Go
D	3½ Min.	Moved blocks around in no semblance of order.	Gi
E	35 Sec.	Did Task correctly - looked in mirror constantly.	Gi
F	7 Sec.	No trouble.	Ex
G	10 Sec.	No trouble.	Ex

Figure IV

Pre-test IV: Individual Performance on the Object Sort Test

O M	OBSERVATION	BEHAVIOR
c.	No trouble - did not speak.	Withdrawn
c.	No trouble - did not speak	Withdrawn
n.	First attempt failed - second was successful	Good
n.	Moved blocks around in no semblance of order.	Giddy
c.	Did Task correctly - looked in mirror constantly.	Giddy
c.	No trouble.	Excellent
c.	No trouble.	Excellent

Figure IV

st IV: Individual Performance on the Object Sort Test

B. TAC PROGRAM: TRAINING LESSONS AND OBSERVATIONS

Lesson I. Examining objects by touch with eyes closed.

The child examined each object with his eyes closed. A shoe box, with two ends open - one facing the trainer, the other facing the child - was used to keep the object unknown to the child. With this task it was assumed that the child would direct all available attention energy to the object in hand. If the child was verbal, he should have been encouraged to verbalize the properties of the object he was touching. If the child was nonverbal or communicates with difficulty, he was simply encouraged to handle and feel the objects while the trainer made such comments as: "See if you can feel this ball; it is bumpy, isn't it?" With this lesson, the distractions which were potentially competing for the child's attention were the fantasies, ideas or feeling that might have crossed his mind.

Observations:

1. The majority of the children had difficulty keeping their eyes closed and keeping their hands in the box to fully examine the stimulus. Most of the children wanted to open their eyes and remove the object from the box.

2. The trainer had to say to all the children many times,

"Tell me about what you feel. Is it soft? Is it hard?"

3. The older children were more verbal than the younger children in their descriptions of the objects.

4. The older children guessed correctly in many instances what it was they felt.

5. The younger children had greater difficulty identifying the geometric shapes.

Lesson II. Examining objects by touch with eyes open.

Each object was presented to the child through the box and was examined by touch. During this lesson, the child kept his eyes open. The child, then, being able to inspect other objects in the room, was met with many potential distractions, which were in competition with the object in hand for the attention-energy available. With this task, the child was placed in a situation that required him to withhold attention from distractions while he directed attention to the object in hand.

Observations:

1. The majority of children, again, wanted to take the stimulus out of the shoe box.

2. One child gave the names of the different stimuli in Spanish.

3. One child had difficulty guessing what the objects were, if they were not round. All round objects were balls to this child.

4. One child was giddy and distracted by the mirror to the back. Even with this distraction, the child was able to identify the stimuli correctly.

5. The trainer had to verbalize various properties of the stimuli to two children. Their responses were given by nodding their heads (for "no") or shaking their heads (for "yes") for the correct answer.

Lesson III. Examining objects by touch and by focal attention.

Here, each object was placed on top of the desk or table and the child was asked to take it in his hand to feel it, and to look it over. If the child was verbal, he was encouraged to verbalize its properties. With this lesson, the child had the experience of guiding sensory-motor actions, for example, feeling the surface of a geometric shape. Such as act of focal attention was then being directed at the properties of the object. The child, therefore, integrates focal attention with motoric, instrumental responses. Other objects in the room are potential distractions competing for his attention-energy.

Observations:

1. One child was constantly distracted by the normal classroom noises. He asked if he could leave after each object was examined.

2. One child had difficulty in distinguishing soft and smooth from rough.

3. One child would not verbalize properties of the objects. He answered by nodding his head in reply to the trainer's questions.

4. One child was again distracted by the mirror.

5. The remainder of the class performed adequately. They were correct in their verbalizations and seemed to concentrate on what they were doing.

Lesson IV. Examining objects by focal attention.

Here, each object is placed on the desk and the child is asked to look it over but not to touch it or handle it. If the child reaches for object his hands were restrained firmly but gently. It was emphasized that the child must look at the object. If the child was verbal, he was asked to state something that he noticed about the object. With this procedure the child had to exercise many focal acts in order to register each distinguishing property of the object and construct an image of the object.

Observations:

1. The younger children wanted to touch the stimuli when it was placed on the desk.

2. All but one child verbalized some of the properties of the objects. The child who did not verbalize, responded by nodding his head.

3. Many of the properties of the objects, such as color, size, softness and the identity of the object, were retained

by the children from the previous sessions.

4. As a group, the class was not so distractable during this lesson.

Lessons Five through Ten made use of both sets of objects in the kit, one set representing the stimuli, the other set representing the responses. In general, these lessons presented the child with a single object that was examined by touch only, an identical object located among the other objects in the same class. Thus the child was asked to match two objects, one of them the stimulus, inspected by touch and focal attention, the other the response, selected by touch only. Moreover, the response was always among the objects in the same class which served as potential distractions.

In order to accomplish a matching of two objects, the child had to construct an image of the critical properties of the stimulus (obtained by means of touch and/or focal attention: and images of the possible responses (obtained by touch only). Then he had to select, from among the response images, the one image identical to the stimulus.

Lesson V. a. Matching rubber objects: stimulus examined by touch; responses examined by touch.

The trainer placed one set of rubber objects (the responses) in a cloth bag. Then he presented, one at a time, each object (the stimuli) from the second set of rubber

objects, presented to the child through the box. The child was asked to examine the stimulus object by touch only and then to search the bag with his hands and select, by touch only, an object that was exactly like the stimulus. It was sometimes useful to ask highly distractable children to close their eyes while examining the objects by touch. At a later point, the eyes can remain opened, allowing objects in the room to compete for attention.

Observations:

1. Both boys had great difficulty picking the correct response from the bag.
2. Most of the children wanted to take the stimuli out of the box to look at it.
3. One child had difficulty in distinguishing the smooth ball from the textured ball (the textured ball had bristles.)
4. One child did not speak to the trainer at all.
5. The older children seemed to concentrate more.

Lesson V b. Matching rubber objects: stimulus examined both by touch and focal attention; responses examined by touch.

The same general procedure was followed as with Lesson V a. Here, however, the child was allowed to examine the stimulus by acts of focal attention and touch. He was then asked to select, by touch only, from a bag containing the entire set of rubber objects, one object that was exactly like the stimulus.

Observations:

1. Two children had no difficulty at all in performing the tasks.

2. Some of the children had great difficulty in finding the smooth rubber ball in the bag of rubber objects.

3. Other children had difficulty at first in choosing the response. As they seemed to concentrate on the task it seemed to become easier.

Lesson V c. Matching rubber objects: stimulus examined by focal attention; responses examined by touch.

Following the same procedure as Lesson V a, the child was asked to examine visually the stimulus placed on the table. He was then asked to select by touch, from a bag containing the entire set of rubber objects, an object that was exactly like the stimulus on the table.

Objectives:

1. Only two children had trouble with the task. One child had trouble finding the smooth rubber ball. The other child difficulty finding the rough rubber ball.

2. The other children worked very well despite the noise of the classroom.

Lesson VI. Matching geometric shapes.

Following the general procedures of Lesson V a, this lesson used the two sets of plastic geometric shapes as

stimuli and responses. Briefly, each of the shapes in one set was presented, one at a time, as a stimulus, and the child was to select by touch only, from a second set of pieces in a cloth bag, with one shape that was exactly like the stimulus. The stimuli was represented so that the child first examined each object by touch, alone, with his eyes closed. A second examination of the object was done with the child's eyes opened. Further inspection was continued by touch and visual inspection and then by visual inspection alone. All three phases were completed in one session.

Observations:

1. The children had no difficulty in selecting the circle for the correct response when that particular geometric shape was presented.

2. Two children had no difficulty in any phase of training in this lesson.

3. The triangle gave more than half of the children difficulty when it was presented as a stimulus.

4. The majority of the children could not distinguish between a square and a triangle.

5. The younger boys were performing better and for a longer period of time than they had before.

6. The children still had difficulty in keeping their eyes closed when it was required. They also wanted to look into the bag.

Lesson VII. Matching miniature silverware and keys.

The same procedures of Lesson VI were followed. Instead of the using the geometric shapes, the trainer used a set of miniature silverware and keys as stimuli and responses. Again, all three phases were completed in one session.

Observations:

1. The children, as a group, had little difficulty with this lesson.

2. The concepts of "spoon" and "fork" confused the younger children. They seemed to understand the concept of "silverware" and its use but did not differentiate between a fork and a spoon. Each was chosen as a response for the other frequently and randomly.

3. The children worked more purposely in this lesson.

4. Verbalization increased.

Lesson VIII. Matching toy animals.

Again, the same procedure was used (see Lesson V), with the use of toy animals as stimuli and responses. All three phases were completed in one session.

Observations:

1. Only one child had no difficulty with the correct responses.

2. The other children had difficulty in choosing the correct responses. The toy animals, unlike the other

materials used, were similar in size, shape, and texture.

3. The older children, after a period of trial and error, performed the task correctly.

4. The younger children had difficulty distinguishing between the pig and the lamb.

5. The younger children wanted to open the bag and look into it in order to choose the correct response.

Lesson IX. Matching objects using two or more classes of toys as stimuli.

This lesson followed the general procedures described in Lesson V. Instead of using a single type of object for the stimuli and responses, the trainer combined two or more types of objects to form the stimuli set and the response set. Several possible combinations are described here in order to illustrate the procedure. The trainer constructed other combinations in order to vary the complexity of information presented to the child. By increasing the number of objects to be examined, and by combining classes of objects, the program required the child to actively explore and register, compare, contrast and integrate many more bits of information, and to construct more images of the objects that were to be matched.

Illustration: The plastic shapes were combined with the rubber objects to form two identical sets. As with the

the previous lessons, the child was asked to match the stimulus object with an object he was to find in the bag, by touch only. With this lesson, however, he was required to search through the combined rubber and plastic objects in order to find the correct response. The entire set of stimuli was examined by the child in four separate trials: by touch with eyes closed, by touch with eyes opened, by touch and focal attention, and by focal attention only.

Observations:

1. The older children showed little difficulty in choosing the correct response when the balls were used as a stimuli.

2. The younger children had extreme difficulty when the two sets of stimuli were involved.

3. The entire group had difficulty with the geometric shapes when the response called for the square or triangle.

Lesson X. Matching two objects by similarities and by differences (rubber ball and geometric shapes).

With this lesson two objects were combined to form a set of stimuli and a set of responses. Each set contained both types of objects. The child was provided with a single stimulus object, which, as with the other lessons, is examined by touch, by touch and focal attention or by focal attention only. In this lesson, however, the child was asked to find, by touch only, another object in the bag that was

like the stimulus in one respect but unlike it in another. A lesson is described here as an illustration. Again, the trainer constructed other trials to vary the complexity of the information presented to the child in order to meet the child's individual needs.

Illustration: The examiner presented the child with the smooth rubber ball. The child examined it by touch only. The trainer explained: "Put your hands in this box and feel what I have put in there. Handle it so that you get an idea of what it is like. Now I want you to find something in this bag that is like what you are handling in one way but different from what you are handling in another way." After the child selected his response from the bag, he was asked to verbalize in what way the response object resembled the stimulus object and in what way the two objects were different. In this lesson the child could have selected a round plastic object, for example, because it was round like the ball. The child, also, could have selected the rubber ball with the textured surface because it was identical to the stimulus in shape but had a different texture.

Observations:

1. Many of the children had difficulty in verbalizing similarities and differences.

2. The older children performed better than the younger ones.

3. Many of the children wanted to open their eyes when that phase of testing required that their eyes be closed.

4. Many children still attempted to look into the bag.

5. The children continued to show difficulty with geometric shapes.

6. When told to choose something round, they had no difficulty.

C. POST-TEST EVALUATION

1. Maze-trail Test -- Results:

A. The group, as a whole, had little difficulty with this task.

B. The only difficulty encountered was with the most severly retarded of the group. This child had difficulty keeping the pencil between the boundary lines and negotiating the curves of the maze. This is indicative of poor motor-coordination due to a cerebral dysfunction. (See Figure V.)

2. Picture Discrimination Test -- Results:

A. The number correct increased for the majority of the group.

B. One child's score remained the same.

C. One child's score decreased.

(See Figure VI.)

3. Button Test -- Results:

A. The time required to do the task increased with

four of the children.

B. Two of the children's time decreased.

C. One child's time remained the same.

D. Not one child put all the buttons in one container as in the case of the pre-test.

E. All of the children performed the task correctly. (See Figure VII.)

4. Object sort Test -- Results:

A. The time required to do the task decreased with four of the children.

B. One child's time remained the same.

C. Two children required more time to do the task.

D. All children completed the task correctly. (See Figure VIII.)

CHILD	OBSERVATIONS	
A	No difficulty with task.	Wit
B	Had difficulty staying in line when drawing around curves.	Wit
C	Had difficulty staying in the line.	Dis
D	Had difficulty on curves of the maze.	Att yet
E	No difficulty with task.	Dis
F	No difficulty with task.	Exc
G	No difficulty with task.	Exc

Figure V

Post-test One: Individual Performance of the Maze-Trail

OBSERVATIONS	BEHAVIOR
fficulty with task.	Withdrawn
ifficulty staying in line when drawing ound curves.	Withdrawn
ifficulty staying in the line.	Distractable
ifficulty on curves of the maze.	Attentative yet talkative
fficulty with task.	Distractable
fficulty with task.	Excellent
fficulty with task.	Excellent

Figure V

ost-test One: Individual Pe rmance of the Maze-Trail Test

CHILD	NUMBER OF ITEMS COVERED	OBSERVATIONS
A	3	Score improved by one.
B	3	Score remained the same.
C	3	Score improved by two.
D	3	Score improved by one.
E	4	Score improved by two.
F	4	Score dropped by one.
G	5	Score improved by two.

Figure VI

Post-Test Two: Individual Performances on the Picture Discri

BER OF MS ERED	OBSERVATIONS	BEHAVIOR
3	Score improved by one.	Withdrawn
3	Score remained the same.	Withdrawn
3	Score improved by two.	Active
3	Score improved by one.	Excitable
	Score improved by two.	Distractable
	Score dropped by one.	Excellent
	Score improved by two.	Excellent

Figure VI

est Two: Individual Perfor[redacted]ces on the Picture Discrimination Test[redacted]

CHILD	TIME TO PERFORM TASK	OBSERVATIONS	
A	45 Sec.	Time has greatly decreased from 3½ min. Task done correctly.	Wit
B	45 Sec.	Time has increased by 20 Sec. Task done correctly.	Wit
C	45 Sec.	Time has increased by 25 Sec. Task done correctly.	Goo
D	45 Sec.	Time has increased by 10 Sec. Task done correctly except for first 2 grey buttons [illegible]	Goo Exc
E	25 Sec.	Time has decreased by 5 Sec. Task done correctly.	Ver
F	25 Sec.	Time increased 5 sec. Task done correctly.	Exc
G	10 Sec.	Same time as Pre-test. Task done correctly.	Exc

Figure VII

Post-Test Three: Individual Performance on the Button-T

	OBSERVATIONS	BEHAVIOR
	Time has greatly decreased from 3½ min. Task done correctly.	Withdrawn
	Time has increased by 20 Sec. Task done correctly.	Withdrawn
	Time has increased by 25 Sec. Task done correctly.	Good
	Time has increased by 10 Sec. Task done correctly except for first 2 grey buttons which he put into black jar.	Good Excellent
	Time has decreased by 5 Sec. Task done correctly.	Very
	Time increased 5 sec. Task done correctly.	Excellent
	Same time as Pre-test. Task done correctly.	Excellent

Figure VII

t-Test Three: Individual Performance on the Button-Test

CHILD	TIME TO PERFORM TASK	OBSERVATIONS	
A	40 Sec.	Time decreased by 5 sec. Task done correctly.	W
B	40 Sec.	Time increased by 5 sec. Task done correctly.	D
C	30 Sec.	Time decreased from 1 min. No great difficulty.	E
D	35 Sec.	Time decreased from 3½ min. Did task correctly.	E
E	20 Sec.	Time decreased by 5 sec. Task done correctly.	E
F	20 Sec.	Time increased by 13 sec. Task done	E
G	10 Sec.	Time remained same	E

Figure VIII

Post-Test Four: Individual [illegible]formance on the Object So

TO RM	OBSERVATIONS	BEHAVIOR
Sec.	Time decreased by 5 sec. Task done correctly.	Withdrawn
Sec.	Time increased by 5 sec. Task done correctly.	Distractable
Sec.	Time decreased from 1 min. No great difficulty.	Excellent
Sec.	Time decreased from 3½ min. Did task correctly.	Excellent
Sec.	Time decreased by 5 sec. Task done correctly.	Excellent
Sec.	Time increased by 13 sec. Task done	Excellent
Sec.	Time remained same	Excellent

Figure VIII

Post-Test Four: Individual Performance on the Object Sort Test

CHAPTER IV

A. SUMMARY

In summation, the writer will discuss briefly what the study was attempting to prove and who was involved in the study.

This study involved a group of trainable mentally retarded children. By using a series of structured lessons, the writer was attempting to train these children to perceive relevant stimuli more readily, irregardless of the presence of other stimuli which may have had distracting effects on the child. Relevant stimuli advance the learning process; irrelevant stimuli detract from the child's capacity to learn, hence interfer with the learning process. For example, if the child were doing simple arithmetic (1+1), and was also conscious of other classroom noises (desks being moved, reading groups, et cetera) he would not be perceiving the relevant stimuli (the arithmetic) to his fullest capacity. The child, then, would not be able to achieve to his fullest potential and would lose an aspect of the lesson.

By utilizing the Training in Attention and Concentration Program, the children had an opportunity to develop their focal attention, which is the directing of their attention toward a particular stimulus and perceiving it to their fullest capacity.

The study was evaluated by a series of tests which were given before the training began and after its final phase. By comparing each child's performance on the tests, the writer was able to draw his conclusions as to whether the training was beneficial to this particular group.

B. CONCLUSIONS

The conclusions arrived at were derived from the comparison of the pre-tests and the post-tests results. The conclusions drawn from each test follows:

1. Maze-Trail Test

The results from this test indicated that each child knew the task that had to be performed. The most severely retarded children in the group, however, had difficulty staying within the boundary lines designated by the task.

After TAC training was administered, the children performed the task correctly. The more severely retarded were observed to work more slowly than prior to the TAC Program as they attempted to stay within the boundaries of the maze.

2. Picture Discrimination Test:

The post-test evaluation showed that as a group, the number of wrong items decreased after the TAC Program was administered. Prior to the TAC Program, 51.4% of the items were answered correctly by the group. After the TAC Program 71.4% of the items were answered correctly. This shows

an increase of 20% in number of correct responses, as a group (See Figure IX.) It should also be noted that one child's score remained the same and one child's score dropped.

In this evaluatory procedure, the results of the TAC Program indicated an increase in the group's ability to distinguish similarities and differences in pictures.

3. Button Test:

The results from the post-test evaluations on this test seemed to indicate that as a group, the children spent more time in selecting the correct buttons and succeeded in performing better than in the pre-test. The time required to do the task increased with four of the children. One child's time remained the same and two children's time decreased.

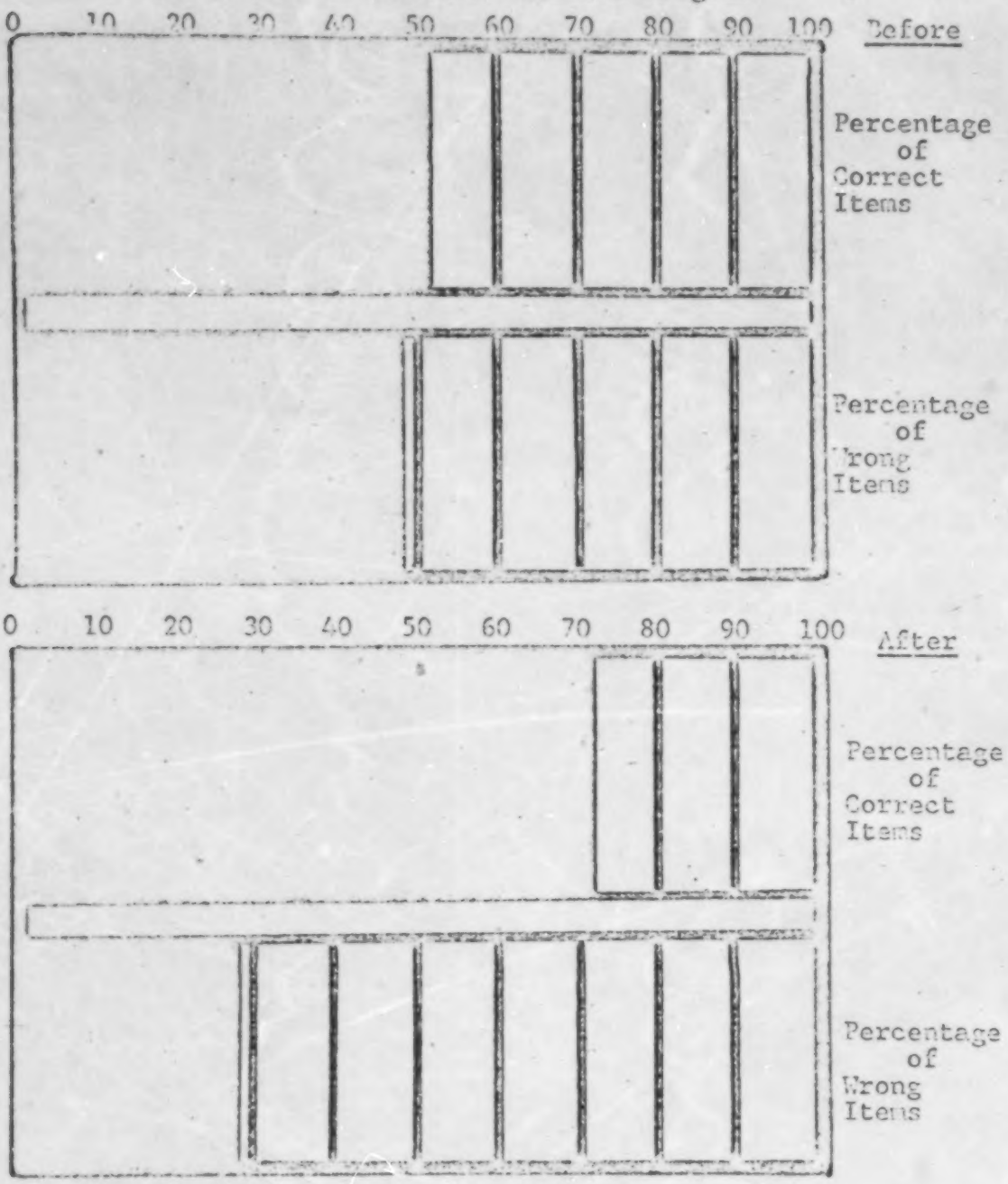
The conclusions from this test demonstrate that more time was spent by the group in selecting the correct responses. This fact may indicate that a mental process of selection and rejection of responses was taking place, and that there was not a random selection of responses given, as seemed to be a characteristic in the pre-test. It may be added that each child completed this task correctly.

4. Object Sort Test:

The results of this test showed an overall decrease in the time required to perform the task. Unlike the Button

Figure IX

Comparison of the Results of the Picture Discrimination Test Before and After the TAC Program


0 10 20 30 40 50 60 70 80 90 100
Before
Percentage of Correct Items
Percentage of Wrong Items
0 10 20 30 40 50 60 70 80 90 100
After
Percentage of Correct Items
Percentage of Wrong Items

test where twelve small buttons were used, this test consisted of sets of geometric shapes. The process of selection or rejection had to be made but the time required was not as long as the Button Test.

All of the children performed this task correctly. Four of the children required less time to perform the task after the TAC Program. One child's time remained the same and one child required more time than prior to the TAC training.

From this test the writer concluded that a group, because the task was not as involved as the button test, the children were able to reach their conclusions quickly as the responses were made to the stimuli.

General Conclusions:

1. After administration of the TAC Program, the more severely retarded of the group worked more diligently and seemed to concentrate on the task at hand.

2. After administration of the TAC Program, the group demonstrated an increased ability to discriminate differences in objects.

3. After the administration of the TAC Program, the group showed a marked increase in areas which required them to perform a task.

4. After the administration of the TAC Program, the group has an increase in their ability to form concepts,

of shape, color, and size.

C. RECOMMENDATIONS

The TAC Program as used in this study, shows that retarded children can perceive and achieve nearer to their full potential.

The administration of the TAC Program is time-consuming and would not be efficiently given if the administration of it were left to the classroom teacher, who is extremely busy with the duties in the classroom. This program should be given by someone outside the classroom who is sufficiently acquainted with the program. Such an individual might be a guidance counselor, a psychologist or a special education director. If the TAC Program were given by one of these individuals, the classroom teacher would be free to conduct the classroom activities, and the children might bring with them the skills which they learned from the TAC Program.

This program may also be used for normal children who have learning disabilities and are not functioning to their fullest potential.

Ideally, a TAC Program should be utilized in every school system to meet the academic shortcomings of the children, which, in many cases, are attributed to an inability to concentrate and focus attention on the material to be learned. Only through a training program such as the Training in Attention and Concentration Program, will the child

who is a lazy perceiver learn to achieve his full potential.

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